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February 4, 2019

Dr. Weiquan Dong, P.E.
Bureau of Industrial Site Cleanup
Nevada Division of Environmental Protection
2030 E. Flamingo Rd, Suite 230
Las Vegas NV 89119

RE: Baseline Ecological Risk Assessment Work Plan for Operable Unit 3, Revision 1
Nevada Environmental Response Trust
Henderson, Nevada

Dear Dr. Dong:

The Nevada Environmental Response Trust (NERT) is pleased to present the Baseline Ecological Risk Assessment Work Plan for Operable Unit 3, Revision 1 for Nevada Division of Environmental Protection (NDEP) review. This revised work plan is submitted as requested in your December 14, 2018 letter and includes an annotated response to comments. This work plan outlines the process that will be implemented to evaluate if contaminants of potential concern that have migrated to Operable Unit 3 from the NERT Site have an adverse impact on ecological receptors. This risk assessment, in addition to the baseline health risk assessment, will be used to determine where environmental media must be evaluated for remediation during the upcoming Feasibility Study.

If you have any questions or concerns regarding this matter, feel to contact me at (702) 960-4309 or at steve.clough@nert-trust.com.

Office of the Nevada Environmental Response Trust

Stephen R. Clough

Stephen R. Clough, P.G., CEM
Remediation Director
CEM Certification Number: 2399, exp. 3/24/19

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NDEP Comment	Response to Comment
General Comments	
Specific Comment #1 Section 3.2, Biological data/surveys, page 17, last sentence. The last sentence states: "These studies were used to design the OU-3 BERA and the FSP; however, since, these data are outdated or limited in scope, these data will not be used directly in the BERA food web model." Please clarify how the data were used to design the BERA and FSP without being used directly in the food web model. Additionally, many of the listed studies do not appear to be outdated or limited in scope. While later sections do address some of these concerns (e.g., regrading with 2-5 ft of soil), the impacts of those activities should be considered temporary, and recolonization of the regraded area by the ecological assemblages found prior to regrading would be expected. Please provide additional detail in this section or in the Footnote 8 as to why the data are not appropriate for use.	The text in Section 3.2 was revised to state that "Sections 3.2.1 and 3.2.2 provide information on species, populations and communities present within the Wash. The data provided is strictly observations and counts of various species in the Wash." Text was also added stating that "these studies were used to inform the selection of receptors to use in the OU-3 BERA food web model." As such, these data aided in the design of the food web model by assisting in the selection of species to include in the risk assessment. However, these data are not used directly in the food web model because only media concentrations and tissue residue data would be used directly in the model. Footnote 8 was deleted. The text in Section 3.2 was revised to state that "Tissue data is available from the literature for fish and bird eggs. These data are discussed in Section 3.2.3. While bird eggs were only collected in one location near OU-3 and fish tissue was collected in only one location within OU-3, these data will be considered in the OU-3 BERA risk assessment as appropriate." Text was added to Section 4.1.1.4 stating that surface soil samples will be collected in the seep area. The figures in the field sampling plan (FSP) in Appendix A of the OU-3 BERA Work Plan have been revised to reflect the new surface soil samples to be collected at the seep area.
Specific Comment #2 Section 4.1.2.1, Population and community studies within the Wash, page 29/30. The paragraph states that the studies "were conducted over 10-15 years ago," and proposes only a macroinvertebrate community evaluation. Please explain why no other population studies will be conducted, and whether existing data from the other listed population studies (fish, amphibians, reptiles, birds, mammals) will be used in the BERA.	The text in this section was revised to state: "No other species surveys are proposed as part of the OU-3 BERA field sampling effort at this time because the BERA will provide food web modelling to evaluate potential risks to wildlife species. If the BERA identifies potential risks for wildlife species, then focused studies on those species may be proposed in the future. The BERA will also use a quantitative approach, if available, to evaluate other species (fish and amphibians/reptiles) using chemical data and toxicity reference values. The results of this evaluation may also suggest the need for additional studies in the future."

NDEP Comment	Response to Comment
Specific Comment #3 Section 5.5, Identification of potentially complete exposure pathways, page 41. The Aquatic section contains a bullet point for direct contact of benthic invertebrates to COPECs in sediment. Does this also include sediment pore water? If not, please identify the potential receptors for sediment pore water, or explain how pore water data will be included in this risk assessment. In addition, please provide further justification for the statement that the Chimera Golf Course does not attract native wildlife. The golf course represents an oasis that is likely to be highly attractive to some native wildlife.	The text in the third bullet of the Aquatic section has been revised to state "direct contact of benthic invertebrates to COPECs in sediment and sediment pore water." Text has been added to Section 5.5 that explains that "there is no pathway for chemicals from OU-1 into the lined ponds of the Chimera Golf Course. The current understanding of groundwater flow indicates that the groundwater pathway from OU-1 to OU-3 does not connect to these man-made ponds and therefore there is no complete exposure pathway for receptors that might frequent the area." Additionally, the text in Section 5.5 was expanded to state that "The Chimera Golf Course contains artificial and maintained landscaping including the areas around the lined ponds. While the native wildlife may intermittently visit the ponds, these areas do not provide preferred habitat. The indigenous species will preferentially forage and nest near the Wash where the habitat is less disturbed and resources are abundant."
Specific Comment #4 Section 5.6, Assessment and Measurement Endpoints, page 42. In reference to Aquatic assessment endpoint 5 and Terrestrial assessment endpoint 5, please provide further discussion of why mammal/fish TRVs are a suitable surrogate for toxicity to reptiles/amphibians. While toxicity information for reptiles/amphibians is limited, it is not "common practice" to assume that the risk estimation for terrestrial mammals or aquatic fish will also be protective of reptiles or amphibians, respectively. A lack of TRVs may be a more appropriate reasoning for the exclusion of reptiles. Once a more focused list of COPECs has been developed for the site, current literature should be reviewed for toxicity information relevant to reptiles and amphibians, and the results included in the risk characterization and uncertainty discussion of the BERA.	The text in Section 5.6 was revised to state that "Toxicological information for amphibians is limited. However, relevant amphibian toxicological data for selected chemicals will be reviewed. ESVs that are considered appropriate and protective of amphibians will be selected from amphibian and fish toxicological information for use in the risk assessment. The lack of amphibian TRVs will be addressed as an uncertainty." The text in Section 5.6 was revised to state that "Due to the very limited availability of toxicological information for reptiles, a comprehensive quantitative risk characterization for reptiles is not feasible without unacceptable levels of uncertainty (Sparling et al. 2000). Risk management decisions that are protective of other functional groups, however, are generally considered to be protective of reptiles. If relevant toxicological information is readily available for selected chemicals, that information will be considered for use in the risk assessment. The lack of reptile TRVs will be addressed as an uncertainty."

NDEP Comment	Response to Comment
Specific Comment #5 Section 5.9.3, Background soil and sediment data, page 49. This section should contain a discussion of the "site-specific background data ... used in the OU-3 BERA" so it is clear that the appropriate data are used. (Note that BRC used all 120 background samples - 104 from BRC/TIMET and 16 from Environ - in early risk assessments, then switched to the 104 BRC/TIMET ones, and then switched to the McCullough subset of the BRC/TIMET ones. The challenge is when and where the North River data should be used in lieu of the 120 background samples from BRC/TIMET and Environ). The text notes that: "If there are any constituents for which Site-specific soil or sediment background data are not available, literature sources may be considered." NDEP issued History of Soil Background Datasets at BMI Complex and Common Areas and believe that the existing background data is sufficient, without further data collection from literature provided the local soil conditions match those from the NDEP background studies. In addition, a plan should be laid out for how the background data will be used (statistically or otherwise) in the risk screening steps.	The text in Section 5.9.3 has been revised to refer only to the BRC/TIMET regional background data set (2007) for use in the OU-3 BERA. The text added is consistent with the text provided in the OU-2 SLERA Work Plan as the same background dataset will be used for each of the ecological risk assessments to be prepared for the NERT RI Study Area. Also, text was added to state that "No additional data from literature will be used assuming the local soil conditions match those from the BRC/TIMET 2007 dataset." The text in this section was also revised to explain that "Chemicals may be eliminated from further quantitative evaluation if detected levels are not elevated above naturally occurring levels. However, the consideration of soil and sediment concentrations in combination with ESVs will also be considered before chemicals are eliminated from further evaluation." Text has also been added stating that "The comparison of applicable soil concentrations within the OU-3 BERA dataset to background levels will be conducted using the existing background data sets presented in the BRC/TIMET regional background data set (BRC/TIMET 2007). This background data will only be relevant for chromium and hexavalent chromium as the other COPECs selected for the OU-3 BERA are organic."

NDEP Comment	Response to Comment
Minor Corrections	
Specific Comment #6 Section 1.2, BERA Approach Overview, page 3. It is stated that, "While surface water data is available, sediment and soil data are outdated or insufficient." Please explain why the data are insufficient for use in the BERA.	Text was added to Section 1.2 to indicate why these data are insufficient for use in the BERA, stating "sediment data were collected over 10 years ago and included only one sediment sample from within OU-3. Soil was only collected from limited locations in OU-3 and the areas sampled have since been covered with 2 to 5 feet of clean soil. Therefore, field sampling to support the BERA is proposed to be conducted in the initial phases of the ERA process." As described in Section 4.1.1.2, "only two studies were found during the literature/data review for the Wash that included the collection of sediment. Both studies were conducted over 10 years ago in 2006 and 2007. Surface sediment samples (upper six inches) were collected from six locations in the Wash area (only one of which was within OU-3) to evaluate potential accumulation of contaminants in sediment (SNWA 2011)." As described in Section 4.1.1.4, "only limited soil sampling has occurred in OU-3. Soil samples were collected in the seep area to the south of the Wash in a low-lying area near the former seep and seep sump installed by Kerr-McGee. During grading activities performed by SNWA in 2017, this area was covered with 2 to 5 feet of soil; therefore, these data are no longer relevant for use in the BERA."
Specific Comment #7 Section 4.1.1.4, Soil data, page 29. Sections 3.2.2.4 and 5.3 note the mammal species found along the wash include fossorial mammals. The proposed 0 - 0.5 ft bgs soil samples may not be deep enough to address potential exposure for fossorial mammal receptors. It is recommended that further research be conducted on burrow depth for the potential fossorial mammals found along the Wash. The Work Plan and Field Sampling Plan should subsequently be updated based on the findings and modify the sampling interval or provide justification for why the 0 - 0.5 ft interval is a representative exposure for the fossorial mammals at the site.	Text has been added to Section 4.1.1.4 of the OU-3 BERA Work Plan stating that "deeper soil samples (between 0.5 and 3 feet bgs but targeting between 2 and 3 feet unless there is refusal) will be collected from a subset (i.e., six) of the bank soil sampling locations in the Wash. These samples will be used to determine if site-related chemicals have migrated deeper into the soil after deposition on the banks. Depending on the results of the deeper soil sampling, additional investigation, including consideration of fossorial mammals, may be warranted.

NDEP Comment	Response to Comment
Specific Comment #8 Section 5.8.1, Exposure assessment for aquatic and terrestrial communities, page 44. The first paragraph states "surface sediments refer to the top 6 inches of sediment." Please clarify whether this depth interval also includes sediment pore water.	The depth interval for sediment pore water collection was clarified as requested in Appendix A of the OU-3 BERA Work Plan that contains the FSP). Section 3.1.3 of the FSP now states “The pore water samplers will be placed in surface sediments to a depth of approximately 6 inches consistent with the sediment sampling depths described in Section 3.1.2.”
Specific Comment #9 Multiple Sections, LANL ECORISK database. There is an updated version of the LANL ECORISK database. **Section 5.8.2.1, Wildlife exposure parameters, page 45.** Please update the reference to: https://www.lanl.gov/environment/protection/eco-risk-assessment.php • **Section 5.9.1, Effects assessment for invertebrates, plants, and fish, p. 47.** The 2017 LANL ECO RISK database should also be considered as a source for ESVs. Please update the reference for USEPA Eco-SSLs to: https://www.epa.gov/chemicalresearch/ecological-soil-screening-level • **Section 5.9.2.1, Effects assessment for bird and mammal populations, page 49.** TRVs should be extracted from the updated 2017 database found here: https://www.lanl.gov/environment/protection/eco-risk-assessment.php • **Section 8.0, References, pages 56.** The current document cites LANL 2012 and 2014, although the 2014 citation is missing in the references. The updated document should remove both citations and include LANL 2017.	The following text revisions have been made: • **Section 5.8.2.1, Wildlife exposure parameters, page 45.** The text in Section 5.8.2.1 has been revised to reference LANL 2017. The link was not included in this section, so the link was not added. • **Section 5.9.1, Effects assessment for invertebrates, plants, and fish, p. 47.** The LANL Link provided in specific comment #9 (Section 5.9.1) is no longer operational on the USEPA site. However, the link provided in the OU-3 BERA Work Plan on page 48 directs the user to the correct website. https://www.epa.gov/risk/ecological-soil-screening-level-eco-ssl-guidance-and-documents • **Section 5.9.2.1, Effects assessment for bird and mammal populations, page 49.** TRVs will be extracted from the following link as requested: https://www.lanl.gov/environment/protection/eco-risk-assessment.php **Section 8.0, References, pages 56.** The document and reference list have been updated to include only LANL 2017 as requested.
Specific Comment #10 Table 5-3a, Surface Soil Ecological Screening Values. ESVs for some chemicals (e.g. perchlorate) shown without ESVs in Table 5-3a may be available in the LANL ECORISK Database (LANL, 2017). Tables 5-3b and 5-3c should also be reviewed to determine if the LANL database has ESVs for constituents listed.	ESVs were added from LANL 2017 as requested to all three ESV tables (Table 5-3a, 5-3b and 5-3c).

NDEP Comment	Response to Comment
Specific Comment #11 Figure 5-5, Ecological conceptual site model for OU-3. The Field Sampling Plan includes sampling of sediment pore water (Section 4.1.1.3). Please clarify the potential exposure routes for sediment pore water. In addition, the Work Plan and the Field Sampling Plan propose collection of sediment pore water; however, it is unclear how the pore water data will be used in the risk assessment. Please provide more information on the purpose of collecting the sediment pore water and how the data will be interpreted and used in the BERA. Using the data quality objective process would be an ideal way to provide this explanation and justification for all parts of the BERA.	Section 3.1.3 of the FSP in Appendix A of the OU-3 BERA Work Plan was revised to state that "Measuring porewater provides a means of assessing bioavailability of contaminants in sediment. Porewater sampling provides critical information for assessing exposure and uptake of chemicals to benthic invertebrates and subsequently the fish and wildlife that forage on these organisms. The sediment porewater concentrations measured in the Wash will be compared to surface water ecological screening values to determine potential toxicity to benthic invertebrates." Also, sediment pore water has been added to Figure 5-5 (Ecological Conceptual Site Model) to illustrate pore water as an exposure pathway.